

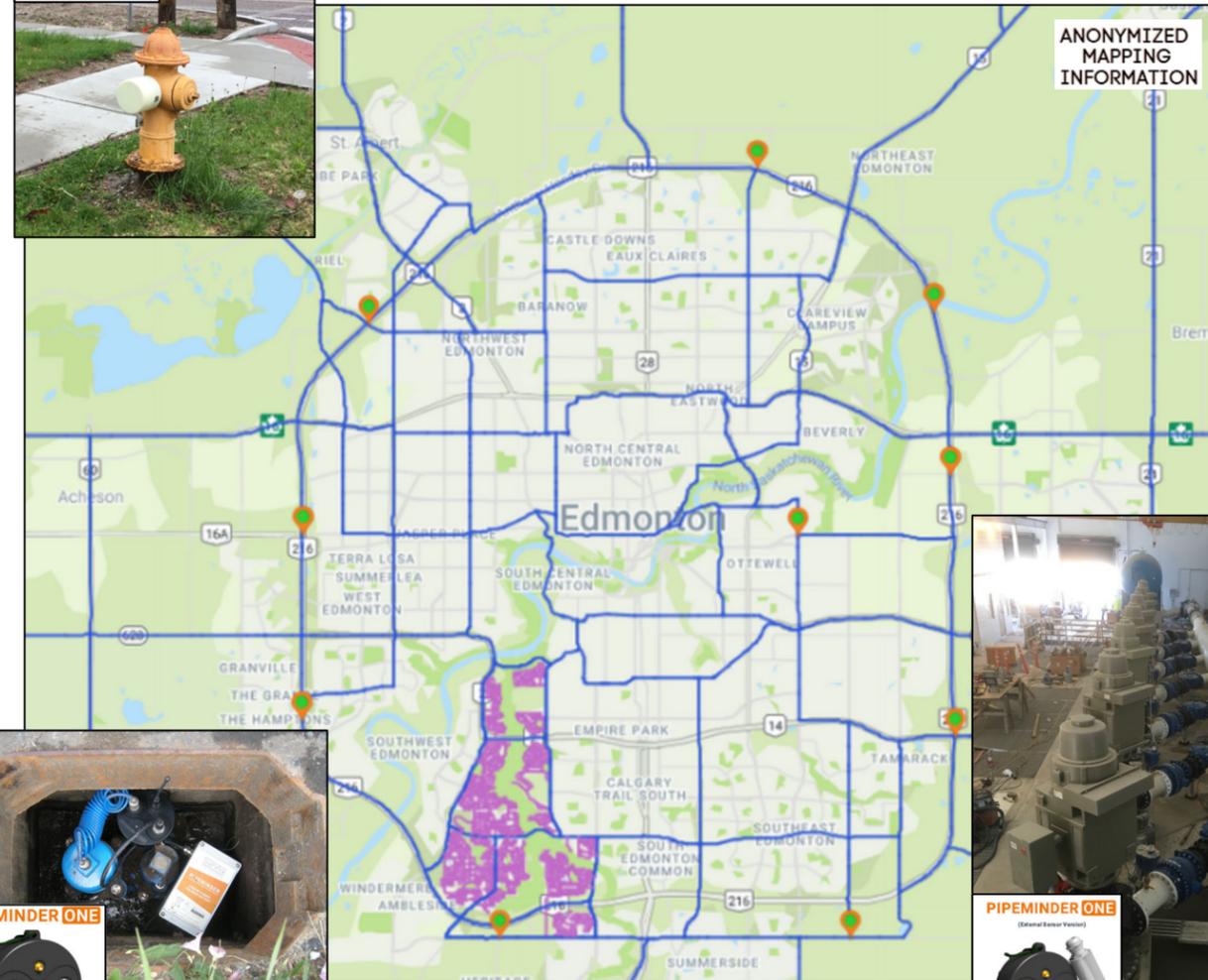
Syrinix | Intelligent Pipeline Monitoring

Hardware deployed in the field:

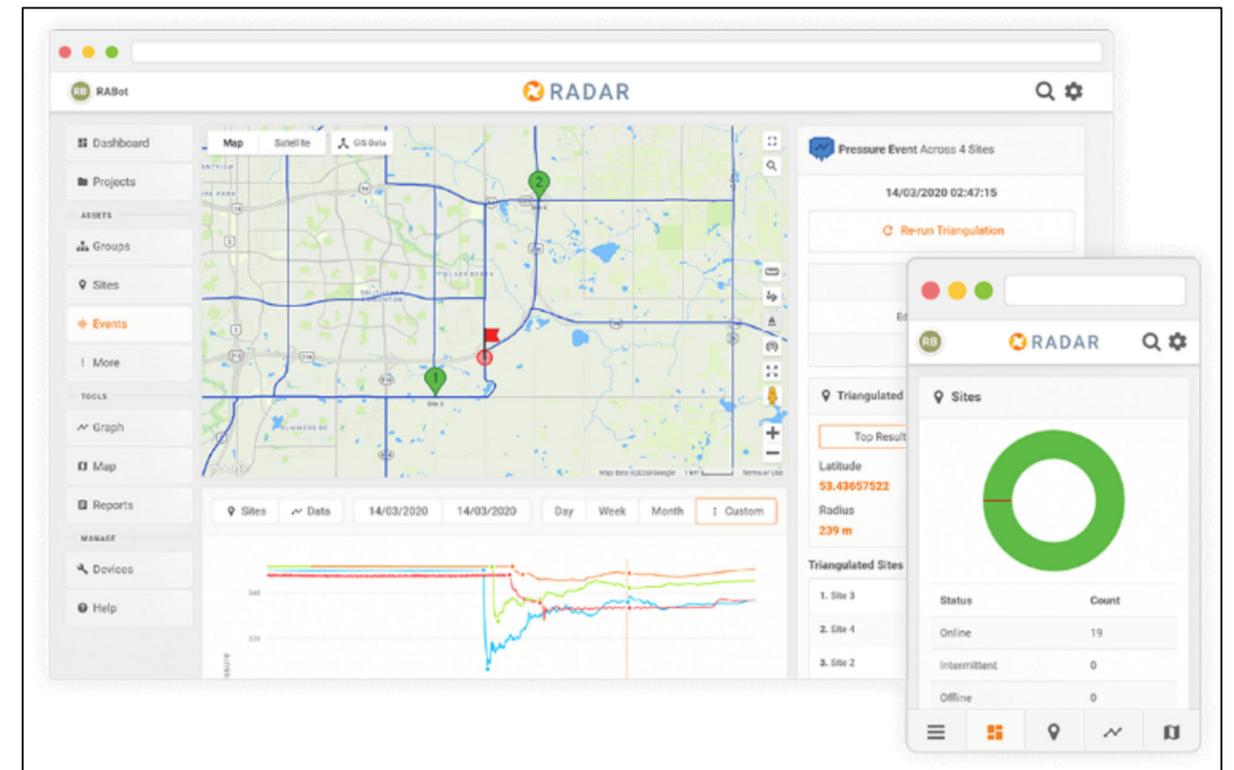
Kits Available (drawing sets):

- Kit A
- Kit B
- Kit C
- Kit D (leak detection)

Kit B



Software - Cloud based (used for all monitoring)



High Resolution + Clock Accuracy + Triangulation (with GIS Shapefiles) + Deployment Planning = Network Calming

This is possible via high resolution transient monitoring (128 times per second sample rate)

Ability to identify problems & advise actions with high resolution data.



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REV	DATE	DESCRIPTION	DWG	GHK	APP



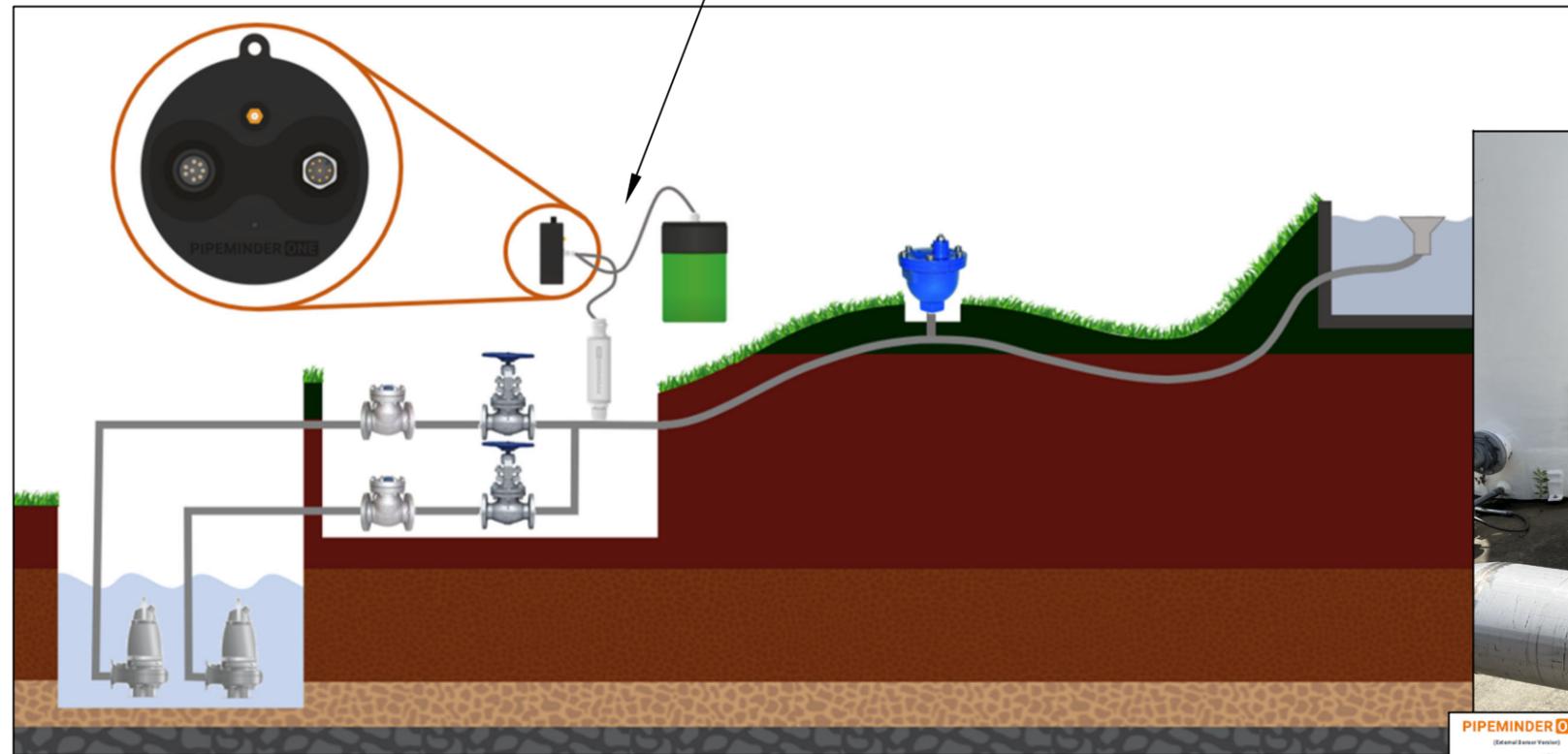
PROJECT NO:	TBD
DESIGNED BY:	JMM 1/22/2023
DRAWN BY:	JMM 1/22/2023
CHECKED BY:	
APPROVED BY:	
SCALE:	N.T.S.

DRAWING TITLE:	Potable Water
PROJECT:	Utility Starter Kits

DRAWING NUMBER:	1
SHEET NUMBER: REV:	1 of 7 0

Syrinix | Intelligent Pipeline Monitoring

Pipeminder One External installed at the lift station (see kit C).



Kit C

Forcemain Monitoring:

- Baseline current system performance
- Set performance parameters
- Determine operating modes
- Advise on potential for optimization
- Set performance alerts (zone alarms)

1. Pump Curve & Profile required to enhance Radars capabilities.
2. Optional Bonus: Ingest data into Radar from utility (ie. pump run times, flow meter data). See sheet 7.

Failure Modes:

- Burst Main
- Blocked suction / blocked main
- Pump Performance Problems
- Passing / sticking / slamming check valve
- Low delivery pressure
- Drive fault
- Suspected air pockets

Kits Available (drawing sets):
Kit C



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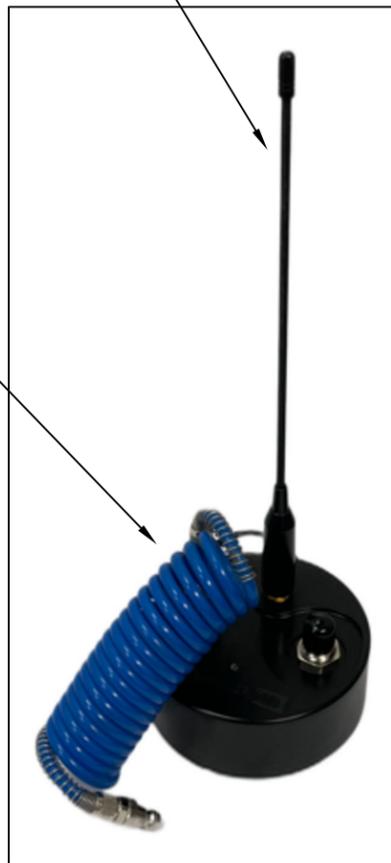


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PROJECT NO:	TBD	DRAWING TITLE:	Wastewater	DRAWING NUMBER:	2
DESIGNED BY:	JMM 1/22/2023	PROJECT:	Utility Starter Kits	SHEET NUMBER:	2 of 7
DRAWN BY:	JMM 1/22/2023			REV:	0
CHECKED BY:					
APPROVED BY:					
SCALE:	N.T.S.				

Kit A

Part # 102243
Antenna PMOne - Whip antenna



Part # 102317
PipeMinder-One 4G (Internal Sensor) -
with connecting hose - no adaptor,
antenna or battery

Requires 1/4" hydraulic connection



Part # 102589-05
Antenna 2J7524M Joystick Magnetic Mount SMA 5M Lead (PM1)

**Both antenna options supplied
with sensor / device location.**

Part # 102621
Battery - Rechargeable - PMS/C/One 12V
22Ahr - incl Souriau lead (N.America only)



Rechargeable lithium battery typically lasts around 1 year. There is also a 120V w/ UPS power option as well. Typically end users will opt for the re-chargeable lithium battery option and purchase 1 additional battery pack for a swap out program as devices get low with the low battery alert showing up within Radar.

Battery Charger sold separate - Part #101969-US

--12 Month Low volume (30MB/month) data plan required (minimum req'd).
--12 Month Radar plan required.

Optional Add On



Part # 100781
Battery/Flow Combo Unit (optional)
{gives ability to directly tie in a flowmeter or water quality sensor in the field}



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DRAWING TITLE:	PipeMinder One PM1
PROJECT:	Utility Starter Kits

DRAWING NUMBER:	3
SHEET NUMBER: REV:	3 of 7 0

Kit B

Part # 101912
Activator - PMH
(typically only one required for utility)



Part # 102280
PipeMinder-H



Lockable at hydrant.
(padlock by others - preference is a knox lock, contact your local fire department to coordinate)

Image above for reference only (quantity dependant on utility)

Battery Charger sold separate - Part #101590-US

--12 Month Low volume (30MB/month) data plan required (minimum req'd).
--12 Month Radar plan required.



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EMD
WATER & WASTEWATER SPECIALISTS
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APPROVED BY:	
SCALE:	N.T.S.

DRAWING TITLE:	PipeMinder H PM-H
PROJECT:	Utility Starter Kits

DRAWING NUMBER:	4
SHEET NUMBER:	4 of 7
REV:	0

Kit C

Part # 102243
Antenna PMOne - Whip antenna



Part # 102589-05
Antenna 2J7524M Joystick Magnetic Mount SMA 5M Lead (PM1)



**Both antenna's supplied with sensor / device location.
(field options)**

Part # 102325
PipeMinder-One 4G (External Sensor) -
with adaptor (N.America) - no antenna,
battery, RADAR or SIM
(5M Lead)



Requires 1/2" hydraulic connection

Optional Add On



Part # 100781
Battery/Flow Combo Unit (optional)
{gives ability to directly tie in a flowmeter or water quality sensor in the field}

Part # 102621
Battery - Rechargeable - PMS/C/One 12V
22Ahr - incl Souriau lead (N.America only)



Rechargeable lithium battery typically lasts around 1 year. There is also a 120V w/ UPS power option as well. Typically end users will opt for the re-chargeable lithium battery option and purchase 1 additional battery pack for a swap out program as devices get low with the low battery alert showing up within Radar.

Battery Charger sold separate - Part #101969-US
**Extension cable leads are available.

--12 Month Low volume (30MB/month) data plan required (minimum req'd).
--12 Month Radar plan required.



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APPROVED BY:	
SCALE:	N.T.S.

DRAWING TITLE:	PipeMinder One PM-Ext
PROJECT:	Utility Starter Kits

DRAWING NUMBER:	5
SHEET NUMBER:	5 of 7
REV:	0

Kit D

Part # 102419
Antenna GPS w/ 5M Lead SMA



Part # 102589-05
Antenna 2J7524M Joystick Magnetic Mount SMA 5M Lead (PM1)



Both antenna's supplied per sensor / device location.

Part # 102644
PipeMinder One acoustic Sensor Head
- no antennas or battery

Part # 102705-10
PIPEMINDER-ONE Acoustic 10 Metre
Sensor Head Flexible Lead

Part # 102645
PM1A Adaptor 1.5" BSPP F to 1.5"
NPT M (USA)



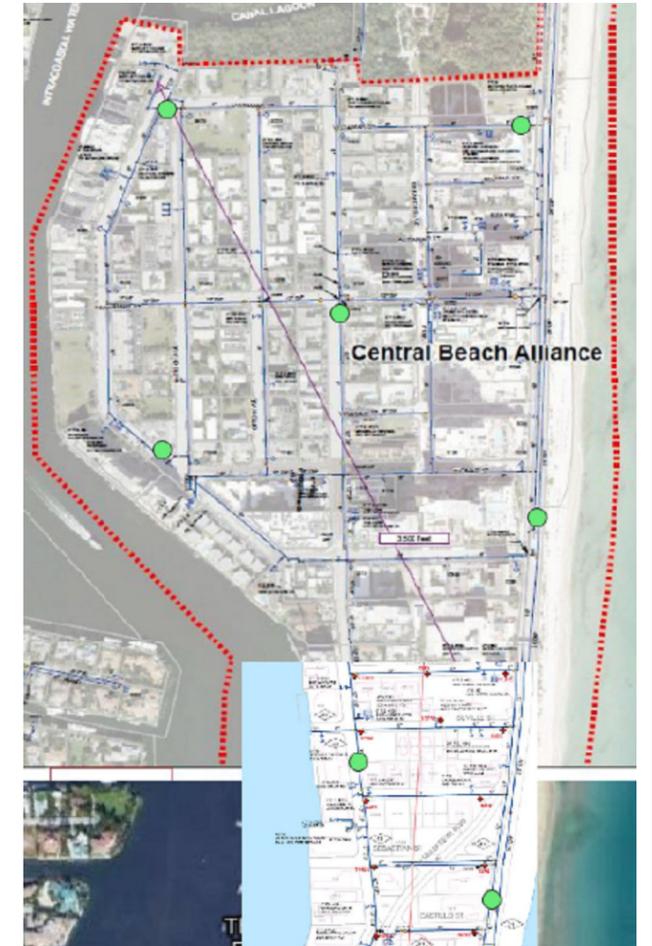
Requires 1-1/2" hydraulic connection

GIS shape files are required.
Pipe materials affects correlation distances.

Part # 102621
Battery - Rechargeable - PMS/C/One 12V
22Ahr - incl Souriau lead (N.America only)



Rechargeable lithium battery. Battery life depends on size of data packets and calls. Typically end users will opt for the re-chargeable lithium battery option and purchase 1 additional battery pack for a swap out program as devices get low with the low battery alert showing up within Radar.



- Can be used for lift and shift leak detection efforts.
- Ideal for permanent leak detection studies. Deployment studies help everyone understand the capabilities. Sensors work together when grouped with other sensors in an area, to minimizing the amount of sensors required.

Battery Charger sold separate - Part #101969-US

--12 Month Low volume (500MB/month) data plan required.
--12 Month Radar plan required.



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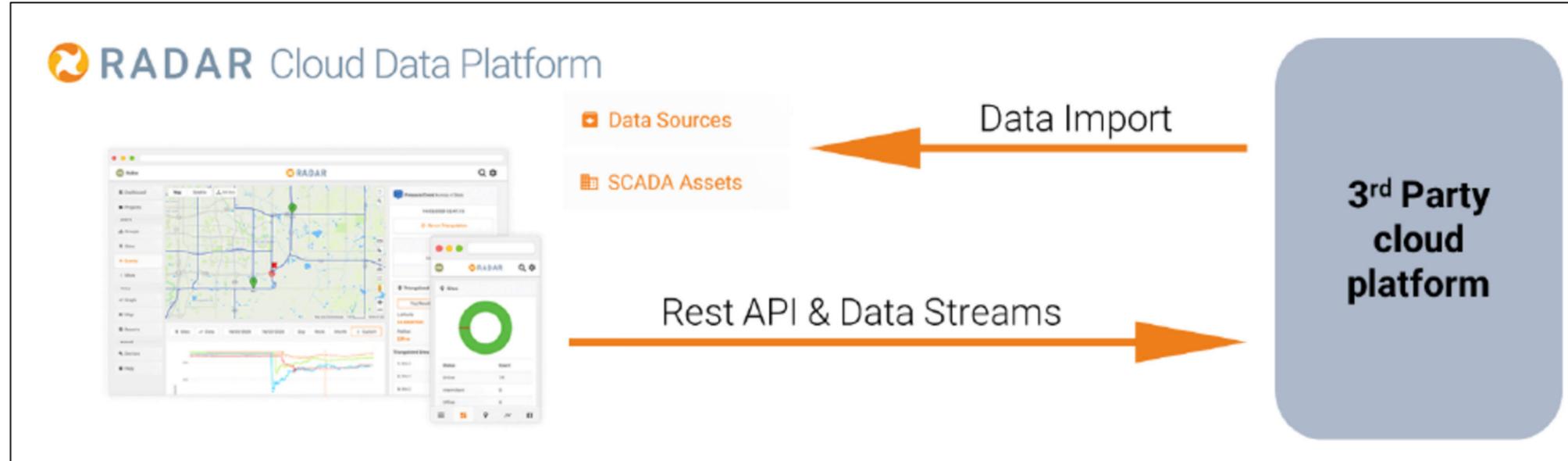
DRAWING TITLE:	PipeMinder Acoustic PM-Acoustic		DRAWING NUMBER:	6
PROJECT:	Utility Starter Kits		SHEET NUMBER:	6 of 7
			REV:	0

Bonus - Data Source (optional)

Highly recommended for lift stations (sewage forcemain systems)

Importing of 3rd part timeseries data into Radar from utility.

- 1) Importing data into Radar via Data Sources.
- 2) SCADA Assets.



Data sources have 26 pre-defined data types, including but not limited to:

- Pressure
- Flow
- Water Quality metrics
- Pump run status
- Valve travel status
- Other (a generic timeseries)

Inputting external data, either through electing to have an SFTP server setup or uploading data manually, allows users the ability to analyze overlaid data in one place. This data can also feed into some analysis in RADAR to allow for better and more insightful analysis to be performed.

--One time SFTP server setup costs.
--Annual data reoccurring costs.



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APPROVED BY:	
SCALE:	N.T.S.

DRAWING TITLE:	Bonus Data Sources
PROJECT:	Utility Starter Kits

DRAWING NUMBER:	7
SHEET NUMBER:	7 of 7
REV:	0